

Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-92 (canceled)

Claim 93 (currently amended): A method of identifying a compound or agent that binds ~~modulates a neurological disorder associated with synaptic function, endocrinopathy or hormonal disease~~ an SV2 protein comprising;

- ~~a) exposing a membrane free SV2 protein to the compound or agent; and~~
- a) obtaining a cell-free or membrane-free SV2 protein or fragment thereof comprising a levetiracetam binding site (LBS);
- b) incubating the SV2 protein or fragment thereof with a compound or agent; and
- c) determining whether the compound or agent binds ~~modulates an activity of the SV2 protein or fragment thereof.~~

Claim 94 (currently amended): A The method of claim 93, wherein the compound or agent is an analog or derivative of levetiracetam.

Claim 95 (currently amended): A The method of claim 94, wherein the analog or derivative of levetiracetam is selected from the group consisting of N-alkylated 2-oxo-pyrrolidine derivatives, N-alkylated 2-oxo-piperidinyll derivatives, and N-alkylated 2-oxo-azepanyll derivatives.

Claim 96 (currently amended): A The method of claim 93, wherein the compound or agent competes with levetiracetam or an analog or derivative thereof for binding to the levetiracetam binding site.

Claim 97 (currently amended): A The method of claim ~~96~~ 93, wherein the compound or agent is an anti-SV2 antibody or fragment thereof.

Claim 98 (currently amended): A The method of claim 97, wherein the anti-SV2 antibody or fragment thereof binds to the levetiracetam binding site of SV2 protein or fragment thereof.

Claim 99 (currently amended): A The method of claim 97, wherein the anti-SV2 antibody or fragment thereof is selected from the group consisting of a polyclonal antibody and a monoclonal antibody.

Claim 100 (currently amended): A The method of claim 99, wherein the antibody fragment is selected from the group consisting of an Fab fragment, Fab' fragment, F(ab')₂ fragment and an scFv fragment.

Claim 101 (currently amended): A The method of claim 99, wherein the monoclonal antibody is selected from the group consisting of a chimeric antibody, a humanized antibody, and a human antibody.

Claim 102 (currently amended): A The method of claim 93, wherein the SV2 protein is SV2A.

Claims 103-125 (canceled)

Claim 126 (currently amended): A The method of claim 93, wherein the method further the step of determining whether the compound or agent modulates an activity of the SV2 protein comprises measuring transport of at least one monovalent cation or divalent cation across a membrane to determine whether the compound or agent modulates an activity of the SV2 protein.

Claim 127 (currently amended): A The method of claim 126, wherein the monovalent cation is selected from the group consisting of H⁺, Cl⁻, Na⁺ and K⁺.

Claim 128 (currently amended): A The method of claim 126, wherein the divalent cation is selected from the group consisting of Ca^{2+} , Zn^{2+} , Pb^{2+} , Mg^{2+} , Mn^{2+} , Fe^{2+} and Cu^{2+} .

Claim 129 (currently amended): A The method of claim 128, wherein the at least one divalent cation is Ca^{2+} .

Claim 130 (currently amended): A The method of claim 126 ~~93~~, wherein the step of determining whether the compound or agent modulates an activity of the SV2 protein comprises measuring SNARE complex formation.

Claim 131 (currently amended): A The method of claim 126 ~~93~~, wherein the step of determining whether the compound or agent modulates an activity of the SV2 protein comprises measuring Ca^{2+} channel formation or activity.

Claim 132 (currently amended): A The method of claim 126 ~~93~~, wherein the step of determining whether the compound or agent modulates an activity of the SV2 protein comprises measuring SV2 interaction with at least one other protein.

Claim 133 (currently amended): A The method of claim 132, wherein the at least one other protein is synaptotagmin.

Claim 134 (currently amended): A The method of claim 132, wherein the at least one other protein is laminin-1.

Claim 135 (currently amended): A The method of claim 126 ~~93~~, wherein the step of determining whether the compound or agent modulates an activity of the SV2 protein comprises measuring transport of at least one substrate across a membrane.

Claim 136 (currently amended): A The method of claim 135, wherein the at least one substrate is selected from the group consisting of amines, acetylcholine, excitatory neurotransmitters, GABA, serotonin, glycine or other amino acids, sugars and organic ions.

Claim 137 (currently amended): A The method of claim 126 93, wherein the step of determining whether the compound or agent modulates an activity of the SV2 protein comprises measuring synaptic vesicle fusion, exocytosis, or synaptic vesicle recycling.

Claim 138 (canceled)

Claim 139 (currently amended): A method of identifying a compound or agent useful for the treatment of a neurological or endocrinological disorder, comprising:

a) obtaining a cell-free or membrane-free SV2 protein or fragment thereof comprising a levetiracetam binding site (LBS);

b) ~~a) exposing a~~ incubating the SV2 protein or fragment thereof to the compound or agent and levetiracetam or an analog or derivative thereof that binds the LBS; and

c) ~~b)~~ determining if the binding of levetiracetam or an analog or derivative thereof to the protein is inhibited ~~modulated~~ by the compound or agent, thereby identifying ~~an~~ a compound or agent useful for the treatment of a neurological disorder.

Claim 140 (currently amended): A The method of claim 139, wherein the analog of levetiracetam is (2S)-2-[4-(3-azidophenyl)-2-oxopyrrolidin-1-yl]butanamide.

Claim 141 (currently amended): A The method of claim 139, wherein the SV2 protein ~~of~~ or fragment thereof is purified.

Claim 142 (currently amended): A The method of claim 139, wherein the SV2 protein is human SV2A.

Claim 143 (currently amended): A The method of claim 142, wherein the SV2A protein comprises SEQ ID NO: 2.

Claim 144 (currently amended): A The method of claim 139, wherein the SV2 protein or fragment thereof is immobilized.

Claim 145 (currently amended): A The method of claim 139, wherein the SV2 protein or fragment thereof is expressed on a transformed host cell.

Claim 146 (currently amended): A The method of claim 139, wherein the levetiracetam or an analog or derivative thereof is directly or indirectly labeled.

Claim 147 (currently amended): A The method of claim 146, wherein the label is a radiolabel.

Claim 148 (currently amended): A The method of claim 147, wherein the radiolabel is ³H.

Claim 149 (currently amended): A The method of claim 146, wherein the label is a fluorescent label.

Claim 150 (currently amended): A The method of claim 146, wherein the label is an enzyme.

Claim 151 (currently amended): A The method of claim 139, wherein the SV2 protein or fragment thereof is incubated with the levetiracetam or an analog or derivative prior to addition of the agent.

Claim 152 (currently amended): A The method of claim 139, wherein the SV2 protein or fragment thereof is incubated with the levetiracetam or an analog or derivative after addition of the agent.

Claim 153 (currently amended): A The method of claim 139, wherein the SV2 protein or fragment thereof is incubated with the levetiracetam or an analog or derivative concurrent with the agent.

Claim 154 (currently amended): A The method of claim 139, wherein the SV2 protein or fragment thereof is incubated with levetiracetam.

Claim 155 (currently amended): A The method of claim 139, wherein the neurological disorder is selected from the group consisting of epilepsy; epileptogenesis; seizure disorders; convulsions; withdrawal seizures; neurological disorders; bipolar disorders; mania; depression; anxiety; migraine; neuralgia; trigeminal neuralgia; chronic pain conditions; neuropathic pain; anaesthesia-related hyperexcitability; cerebral ischemia; head trauma; myotonia; excitatory states provoked by drug or alcohol abuse, dependence or withdrawal; stroke; myoclonus; essential tremor; tics; Tourette's syndrome; dyskinesia; spasticity; movement disorders; neonatal cerebral haemorrhage; amyotrophic lateral sclerosis; Parkinson's disease; Alzheimer's disease; a neurodegenerative disease; and dementia.

Claim 156 (currently amended): A method of identifying an agent useful for the treatment of a neurological or endocrinological disorder, comprising:

a) obtaining a cell-free or membrane-free SV2 protein or fragment thereof comprising a levetiracetam binding site (LBS);

b) ~~a)~~ exposing a incubating the SV2 protein or fragment thereof to the agent;

c) ~~b)~~ incubating the SV2 protein or fragment thereof and agent with (2S)-2-[4-(3-azidophenyl)-2-oxopyrrolidin-1-yl]butanamide; and

d) ~~e)~~ determining if the binding of (2S)-2-[4-(3-azidophenyl)-2-oxopyrrolidin-1-yl]butanamide to the protein is inhibited by the agent, thereby identifying ~~binding partners for the protein~~ an agent useful for the treatment of a neurological or endocrinological disorder.

Claims 157-172 (canceled)

Claim 173 (new): The method of claim 156, wherein the neurological disorder is selected from the group consisting of epilepsy, epileptogenesis, seizure disorders, convulsions, and withdrawal seizures.